



COPY OF PAPERS
ORIGINALLY FILED

Docket No. 0756-2413

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT application of)
Yasuhiko TAKEMURA et al.)
Serial No. 10/028,269) Confirmation No. 2821
Filed: December 28, 2001)
For: SEMICONDUCTOR DEVICE AND)
A MANUFACTURING METHOD FOR)
THE SAME)

CERTIFICATE OF MAILING

I hereby certify that correspondence is being deposited in the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on 5-16-02

Rose M. Siegel

PRELIMINARY AMENDMENT

Please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel claim 1 in its entirety.

Please add new claims 2-21 as follows:

2. A method for forming a semiconductor device comprising:
forming a semiconductor film over a substrate;
forming a first insulating film comprising silicon oxide over said semiconductor film;
forming a gate electrode over said first insulating film;
 patterning said first insulating film into a second insulating film comprising silicon oxide;
introducing an impurity into said semiconductor film using said gate electrode and said second insulating film as masks to form a source region and a drain

05/16/2002 HTECKLU1 00000080 10028269

01 FC:102

84.00 OP

RECEIVED
MAY 20 2002
TECHNOLOGY CENTER 2800

region in said semiconductor film outside said second insulating film and to form a high resistivity impurity region under a part of said second insulating film which extends beyond said gate electrode;

thinning said part of said second insulating film which extends beyond said gate electrode;

forming a third insulating film comprising silicon nitride over at least said part of said second insulating film which extends beyond said gate electrode; and

forming a fourth insulating film comprising silicon oxide over said third insulating film and over said part of said second insulating film which extends beyond said gate electrode,

wherein said fourth insulating film is formed by using TEOS.

3. A method for forming a semiconductor device comprising:

forming a semiconductor film over a substrate;

forming a first insulating film comprising silicon oxide over said semiconductor film;

forming a gate electrode over said first insulating film;

patterning said first insulating film into a second insulating film comprising silicon oxide;

introducing an impurity into said semiconductor film using said gate electrode and said second insulating film as masks to form a source region and a drain region in said semiconductor film outside said second insulating film and to form an N⁻ region under a part of said second insulating film which extends beyond said gate electrode;

thinning said part of said second insulating film which extends beyond said gate electrode;

forming a third insulating film comprising silicon nitride over at least said part of said second insulating film which extends beyond said gate electrode; and

forming a fourth insulating film comprising silicon oxide over said third insulating film and over said part of said second insulating film which extends beyond said gate electrode,

wherein said fourth insulating film is formed by using TEOS.

4. A method for forming a semiconductor device comprising:
forming a semiconductor film over a substrate;
forming a first insulating film comprising silicon oxide over said
semiconductor film;
forming a gate electrode over said first insulating film;
 patterning said first insulating film into a second insulating film comprising
silicon oxide;
introducing an impurity into said semiconductor film using said gate
electrode and said second insulating film as masks to form a source region and a drain
region in said semiconductor film outside said second insulating film and to form a high
resistivity impurity region under a part of said second insulating film which extends beyond
said gate electrode;
thinning said part of said second insulating film which extends beyond said
gate electrode;
forming a third insulating film comprising silicon nitride over at least said part
of said second insulating film which extends beyond said gate electrode; and
forming a fourth insulating film comprising silicon oxide over said third
insulating film and over said part of said second insulating film which extends beyond said
gate electrode.

5. A method for forming a semiconductor device comprising:
forming a semiconductor film over a substrate;
forming a first insulating film comprising silicon oxide over said
semiconductor film;
forming a gate electrode over said first insulating film;
 patterning said first insulating film into a second insulating film comprising
silicon oxide;
introducing an impurity into said semiconductor film using said gate
electrode and said second insulating film as masks to form a source region and a drain
region in said semiconductor film outside said second insulating film and to form an N⁻
region under a part of said second insulating film which extends beyond said gate

electrode;

thinning said part of said second insulating film which extends beyond said gate electrode;

forming a third insulating film comprising silicon nitride over at least said part of said second insulating film which extends beyond said gate electrode; and

forming a fourth insulating film comprising silicon oxide over said third insulating film and over said part of said second insulating film which extends beyond said gate electrode.

6. A method according to claim 2 further comprising:
forming an anodic oxide film on at least a side of said gate electrode;
etching said first insulating film using said gate electrode and said anodic oxide as masks to form said second insulating film.
7. A method according to claim 3 further comprising:
forming an anodic oxide film on at least a side of said gate electrode;
etching said first insulating film using said gate electrode and said anodic oxide as masks to form said second insulating film.
8. A method according to claim 4 further comprising:
forming an anodic oxide film on at least a side of said gate electrode;
etching said first insulating film using said gate electrode and said anodic oxide as masks to form said second insulating film.
9. A method according to claim 5 further comprising:
forming an anodic oxide film on at least a side of said gate electrode;
etching said first insulating film using said gate electrode and said anodic oxide as masks to form said second insulating film.
10. A method according to claim 2 wherein said third insulating film is formed by plasma CVD.

11. A method according to claim 3 wherein said third insulating film is formed by plasma CVD.

12. A method according to claim 4 wherein said third insulating film is formed by plasma CVD.

13. A method according to claim 5 wherein said third insulating film is formed by plasma CVD.

14. A method according to claim 2 wherein said semiconductor device is incorporated into a display.

15. A method according to claim 3 wherein said semiconductor device is incorporated into a display.

16. A method according to claim 4 wherein said semiconductor device is incorporated into a display.

17. A method according to claim 5 wherein said semiconductor device is incorporated into a display.

18. A method according to claim 2 wherein said semiconductor device is incorporated into a liquid crystal display.

19. A method according to claim 3 wherein said semiconductor device is incorporated into a liquid crystal display.

20. A method according to claim 4 wherein said semiconductor device is incorporated into a liquid crystal display.

21. A method according to claim 5 wherein said semiconductor device is incorporated into a liquid crystal display.

REMARKS

This Preliminary Amendment is being submitted herewith to cancel claim 1 and add new claims 2-21. Examination on the merits is requested.

Respectfully submitted,


Eric J. Robinson
Registration No. 38,285

Robinson Intellectual Property Law Office
PMB 955
21010 Southbank Street
Potomac Falls, VA 20165
(571) 434-6789
(571) 434-9499 (facsimile)